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Volk

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[54] **ASPHERIC OPHTHALMIC ACCOMMODATING LENS DESIGN FOR INTRAOCULAR LENS AND CONTACT LENS**

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[52] **U.S. Cl.** **351/161**; 359/718; 359/720; 623/6

[58] **Field of Search** ..... 351/160 R, 160 H, 161, 351/162; 623/6; 359/708, 718, 720

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[57] **ABSTRACT**

A multifocal lens configuration is disclosed having a lens body with first and second surfaces wherein at least one of the surfaces is defined three dimensionally as being rotationally non-symmetric about the optical axis of the lens. The lens surface may be described and modeled as having angular zones or sectors of differing curvature responsible for near, intermediate or distance vision or combinations thereof. The lens surface is defined by a plurality of individually defined semi-meridian sections radiating centrifugally from the apical umbilical point or polar axis of the lens surface, wherein each of the semi-meridian sections are tangent to one another at the apical umbilical point and form a continuous smooth surface in conjunction with one another. Each of the semi-meridian sections may be differently and uniquely shaped, and are defined according to shape and magnitude, wherein the semi-meridian sections within an angular zone may be constant or may vary in a continuous and regular manner. The lens configuration will provide an accommodative affect simulating that of the non-presbyopic phakic eye over a full range of distance regardless of the size of the pupillary aperture. The lens configuration can be used in the design on an intraocular lens wherein one or both surfaces of the lens body is provided with the novel surface, or alternatively in contact lens design in a similar manner.

22 Claims, 5 Drawing Sheets